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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/229,945	01/13/1999	RYOHEI KUKI	TI-28532	5138

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EXAMINER

GHAYOUR, MOHAMMAD H

ART UNIT PAPER NUMBER

2634

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/229,945

Applicant(s)

KUKI ET AL.

Examiner

Mohammad H Ghayour

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 19-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 19-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: in claim 1, line 16, the word "port" should be changed to --post--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4-7, and 19-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (US Patent 5,961,658) in view of Zook (US Patent 6,185,175). Regarding claims 1 and 19, figure 6 of Reed's patent disclose a post-processor that uses a Viterbi detector for receiving sampled partial response of a mass

data storage comprising a filter (inside block 146, see co. 12, lines 46-57) for filtering the recovered partial response data, a predetermined threshold value (see col. 3, lines 33-35) to compare the filtered signal against, generating an error pattern (output of block 146) when a predetermined error pattern occurs (see description of figure 6) and a circuit 150 for modifying (i.e. correcting) the recovered data when the filtered output signal exceeds the threshold (see col. 3, lines 33-35). Reed, however, does not disclose whitening the recovered data output signal, prior to the filtering <sup>but</sup> within the post processor method with a whitening filter. Zook teaches the use of whitening filter in the post processor prior to filtering for the purpose of compensating for the noise correlating effects of the channel equalizer. See abstract, figure 7A (block 121), col. 1, lines 34-38, col. 3, lines 14-20, col. 9, line 27 to col. 10, line 60, col. 16, lines 7-21, and claim 2. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a whitening filter within the post processor in order to compensate for the effects of noise correlation within the channel equalizer. As to claims 2 and 28, the disclosed Viterbi detector in Reed's patent is an EPR4 Viterbi detector (see block 134, and col. 4, lines 34-37). As to claims 4 and 22, Reed discloses the error event pattern of (+1 and -1, see col. 4, lines 45-46). As to claims 7, 25, and 26 this limitation is taught by Reed in col. 4, lines 48-52. As to claims 5, 6, 23, and 24 Reed discloses a variety of other error patterns as disclosed in tables 4 and 5 and the related description. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made <sup>to</sup> ~~chose~~ choose from a variety of possible error patterns in order to achieve his/her design criteria. Regarding claims 20 and 21, the claimed filters

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transfer functions are a general polynomial form of transfer function of any filter and therefore, is not given any patentable weight. As to claim 27, this limitation is fully disclosed by Zook in col. 12, lines 28-42 where the infinite number coefficients terms are approximated to a finite number with finite impulse response.

Claims 3 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed (US Patent 5,961,658, hereafter Reed1) as applied to claims 1, 9, and 18 above, and further in view of Reed et al. (U.S. Patent 6,052,248, hereafter, Reed2).

Reed1, discloses all the subject matter claimed, see above, except for the further limitations as recited in claims 3, ~~11~~, and 29. Reed2 discloses the use of EEPR4 Viterbi detector, in the same field of endeavor, for the purpose of detecting the sampled partial response data. See figure 5, block 134, col. 3, lines 6-31, and col. 5, lines 15-37.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an EEPR4 Viterbi detector in order to achieve a better detection performance at higher data densities (see col. 3, lines 26-31).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad H Ghayour whose telephone number is (703) 306-3034. The examiner can normally be reached on M-TH, 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Mohammad Ghayour  
July 4, 2002

M. G. /  
MOHAMMAD H. GHAYOUR  
PRIMARY EXAMINER

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